```
=> file .nash
=> s neuroligin?
L1          40 FILE MEDLINE
L2          56 FILE CAPLUS
L3          48 FILE SCISEARCH
L4          24 FILE LIFESCI
L5          56 FILE BIOSIS
L6          39 FILE EMBASE

TOTAL FOR ALL FILES
L7         263 NEUROLIGIN?

=> s l7 not 2001-2004/py
TOTAL FOR ALL FILES
L14        140 L7 NOT 2001-2004/PY

=> dup rem l14
PROCESSING COMPLETED FOR L14
L15         42 DUP REM L14 (98 DUPLICATES REMOVED)

=> d ibib abs l15

L15  ANSWER 1 OF 42     MEDLINE on STN
ACCESSION NUMBER:   2000393697     MEDLINE
DOCUMENT NUMBER:    PubMed ID: 10903560
TITLE:              Neuroligation: building synapses around the neurexin-
                    neuroligin link.
AUTHOR:             Rao A; Harms K J; Craig A M
SOURCE:             Nature neuroscience, (2000 Aug) 3 (8) 747-9.
                    Journal code: 9809671. ISSN: 1097-6256.
PUB. COUNTRY:       United States
DOCUMENT TYPE:      News Announcement
LANGUAGE:           English
FILE SEGMENT:       Priority Journals
ENTRY MONTH:        200008
ENTRY DATE:         Entered STN: 20000824
                    Last Updated on STN: 20000824
                    Entered Medline: 20000815


=> d ibib abs l15 2-42

L15  ANSWER 2 OF 42     MEDLINE on STN
ACCESSION NUMBER:   2000333417     MEDLINE
DOCUMENT NUMBER:    PubMed ID: 10877681
TITLE:              Neurobiology. Trigger found for synapse formation.
AUTHOR:             Gura T
SOURCE:             Science, (2000 Jun 9) 288 (5472) 1718-9.
                    Journal code: 0404511. ISSN: 0036-8075.
PUB. COUNTRY:       United States
DOCUMENT TYPE:      News Announcement
LANGUAGE:           English
FILE SEGMENT:       Priority Journals
ENTRY MONTH:        200006
ENTRY DATE:         Entered STN: 20000706
                    Last Updated on STN: 20000706
                    Entered Medline: 20000629

L15  ANSWER 3 OF 42  CAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:       2000:300355  CAPLUS
DOCUMENT NUMBER:        132:330370
TITLE:                  Cloning of cDNA for protein S-SCAM (synaptic
                        scaffolding molecule) from rats
INVENTOR(S):            Takai, Yoshimi; Hata, Hiroshi; Hirao, Kazuyo
PATENT ASSIGNEE(S):     Foundation for Scientific Technology Promotion, Japan
SOURCE:                 Jpn. Kokai Tokkyo Koho, 15 pp.
                        CODEN: JKXXAF
DOCUMENT TYPE:          Patent
LANGUAGE:               Japanese
```

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000125878	A2	20000509	JP 1998-302239	19981023

PRIORITY APPLN. INFO.: JP 1998-302239 19981023

AB The cDNA encoding S-SCAM, a novel protein assocd. with SAPAP1 that binds to postsynaptic d. (PSD)-95/SAP90 that has been identified as a prototypic synaptic scaffolding protein to maintain the structure of synaptic junctions, is isolated from rats by using a yeast 2-hybrid system. PSD-95/SAP90 belongs to a family of membrane-assocd. guanylate kinases and binds N-methyl-D-aspartate receptors, potassium channels, and **neuroligins** through the PDZ domains and GKAP/SAPAP/DAP through the guanylate kinase (GK) domain. The new protein participates in the information exchange and the plasticity in the nervous synapse bond rear section uniquely is offered. It can be used for the studies of the development of nerve system and therapeutics for nerve diseases.

L15 ANSWER 4 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:879153 CAPLUS
DOCUMENT NUMBER: 134:176494
TITLE: Differential gene expression between normal and tumor-derived ovarian epithelial cells
AUTHOR(S): Ismail, Rubina S.; Baldwin, Rae Lynn; Fang, Junguo; Browning, Damaris; Karlan, Beth Y.; Gasson, Judith C.; Chang, David D.
CORPORATE SOURCE: Division of Hematology-Oncology, Department of Medicine, University of California-Los Angeles School of Medicine, Los Angeles, CA, 90095, USA
SOURCE: Cancer Research (2000), 60(23), 6744-6749
CODEN: CNREA8; ISSN: 0008-5472
PUBLISHER: American Association for Cancer Research
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The majority of ovarian tumors arise from the transformation of the ovarian surface epithelial cells, a single layer of cells surrounding the ovary. To identify genes that may contribute to the malignant phenotype of ovarian cancers, cDNA representational difference anal. was used to compare expressed genes in primary cultures of normal human ovarian surface epithelium (HOSE) and ovarian tumor-derived epithelial cells from the Cedars-Sinai Ovarian Cancer (CSOC) repository. A total of 255 differentially expressed genes were identified, of which 160 and 95 were specifically expressed in HOSE and CSOC cells, resp. Using cDNA array hybridization, the expression profiles of the genes identified by cDNA-representational difference anal. were examd. in an addnl. 5 HOSE and 10 CSOC lines. The comparison of av. signal of each gene revealed 44 HOSE-specific and 16 CSOC-specific genes that exhibited at least a 2.5-fold difference in expression. A large no. of genes identified in this study encode membrane-assocd. or secreted proteins and, hence, may be useful as targets in the development of serum-based diagnostic markers for ovarian cancer. Very few genes assocd. with protein synthesis or metab. were identified in this study, reflecting the lack of observable differences in phenotypic or growth characteristics between HOSE and CSOC cells. Northern blot anal. on a subset of these genes demonstrated comparable levels of gene expression as obsd. in the cDNA array hybridization.

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 42 MEDLINE on STN DUPLICATE 1
ACCESSION NUMBER: 2001195521 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11168587
TITLE: Membrane-associated guanylate kinase with inverted orientation (MAGI)-1/brain angiogenesis inhibitor 1-associated protein (BAP1) as a scaffolding molecule for Rap small G protein GDP/GTP exchange protein at tight junctions.
AUTHOR: Mino A; Ohtsuka T; Inoue E; Takai Y
CORPORATE SOURCE: Department of Molecular Biology and Biochemistry, Osaka University Graduate School of Medicine/Faculty of Medicine,

Suita 565-0871, Japan.
SOURCE: Genes to cells : devoted to molecular & cellular mechanisms, (2000 Dec) 5 (12) 1009-16.
Journal code: 9607379. ISSN: 1356-9597.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200104
ENTRY DATE: Entered STN: 20010410
Last Updated on STN: 20010410
Entered Medline: 20010405

AB BACKGROUND: Membrane-associated guanylate kinase (MAGUK) with inverted orientation (MAGI)-1/brain angiogenesis inhibitor 1-associated protein (BAP1), is a member of the MAGUK family that has multiple PDZ domains and interacts with many transmembrane proteins, including receptors and channels, through these domains. MAGI-1/BAP1 is ubiquitously expressed and localized at tight junctions in epithelial cells. It is an isoform of the neurone-specific synaptic scaffolding molecule (S-SCAM), which is known to interact with NMDA receptors and **neuroligins**. We have recently found that S-SCAM also interacts with a signalling molecule, a GDP/GTP exchange protein (GEP) that is specific for Rap1 small G protein, Rap GEP, which has also recently been referred to as RA-GEF/PDZ-GEFI/CNras-GEF. In this study, we have examined whether MAGI-1/BAP1 also interacts with and serves as a scaffolding molecule for Rap GEP at tight junctions in epithelial cells. RESULTS: MAGI-1/BAP1 similarly interacted with Rap GEP in cell-free and intact cell systems. A Northern blot analysis revealed that Rap GEP was expressed in most tissues examined. However, neither postsynaptic density (PSD)-95/synapse-associated protein (SAP) 90 (another member of the MAGUK family) nor SAP97/human discs-large tumour suppressor gene product (another ubiquitously expressed MAGUK localizing to adherens junctions in epithelial cells and the isoform of PSD-95/SAP90) interacted with Rap GEP. CONCLUSION: These results indicate that MAGI-1/BAP1 serves as a scaffolding molecule for Rap GEP at tight junctions in epithelial cells.

L15 ANSWER 6 OF 42 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 2001:55758 BIOSIS
DOCUMENT NUMBER: PREV200100055758
TITLE: Excitation at the synapse: Eph receptors team up with NMDA receptors.
AUTHOR(S): Drescher, Uwe [Reprint author]
CORPORATE SOURCE: MRC Centre for Developmental Neurobiology, King's College London, 4th Floor, New Hunts House, Guy's Campus, London, SE1 1UL, UK
uwe.drescher@kcl.ac.uk
SOURCE: Cell, (December 22, 2000) Vol. 103, No. 7, pp. 1005-1008. print.
CODEN: CELLB5. ISSN: 0092-8674.
DOCUMENT TYPE: Article
General Review; (Literature Review)
LANGUAGE: English
ENTRY DATE: Entered STN: 24 Jan 2001
Last Updated on STN: 12 Feb 2002

L15 ANSWER 7 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2000:546634 CAPLUS
TITLE: Neuroligation: building synapses around the neurexin-**neuroligin** link
AUTHOR(S): Rao, Anuradha; Harms, Kimberly J.; Craig, Ann Marie
CORPORATE SOURCE: Department of anatomy and Neurobiology, Washington University School of Medicine, St. Louis, MO, 63110, USA
SOURCE: Nature Neuroscience (2000), 3(8), 747-749
CODEN: NANEFN; ISSN: 1097-6256
PUBLISHER: Nature America Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Serafini and colleagues provide evidence that **neuroligin** acts as a trans-neuronal signal to induce presynaptic differentiation at neuron-neuron connections in vitro.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 8 OF 42 MEDLINE on STN DUPLICATE 3
ACCESSION NUMBER: 2000348741 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10892652
TITLE: **Neuroligin** expressed in nonneuronal cells triggers presynaptic development in contacting axons.
AUTHOR: Scheiffele P; Fan J; Choih J; Fetter R; Serafini T
CORPORATE SOURCE: Department of Molecular and Cell Biology, University of California, Berkeley 94720, USA.. scheiffe@uclink4.berkeley.edu
SOURCE: Cell, (2000 Jun 9) 101 (6) 657-69. Journal code: 0413066. ISSN: 0092-8674.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200007
ENTRY DATE: Entered STN: 20000810
Last Updated on STN: 20000810
Entered Medline: 20000727

AB Most neurons form synapses exclusively with other neurons, but little is known about the molecular mechanisms mediating synaptogenesis in the central nervous system. Using an in vitro system, we demonstrate that **neuroligin**-1 and -2, postsynaptically localized proteins, can trigger the de novo formation of presynaptic structure. Nonneuronal cells engineered to express **neuroligins** induce morphological and functional presynaptic differentiation in contacting axons. This activity can be inhibited by addition of a soluble version of beta-neurexin, a receptor for **neuroligin**. Furthermore, addition of soluble beta-neurexin to a coculture of defined pre- and postsynaptic CNS neurons inhibits synaptic vesicle clustering in axons contacting target neurons. Our results suggest that **neuroligins** are part of the machinery employed during the formation and remodeling of CNS synapses.

L15 ANSWER 9 OF 42 MEDLINE on STN DUPLICATE 4
ACCESSION NUMBER: 2000447347 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10996085
TITLE: Synapse formation: if it looks like a duck and quacks like a duck ....
AUTHOR: Cantallops I; Cline H T
CORPORATE SOURCE: Cold Spring Harbor Laboratory, Cold Spring Harbor, New York 11724, USA.
SOURCE: Current biology : CB, (2000 Sep 7) 10 (17) R620-3. Ref: 22 Journal code: 9107782. ISSN: 0960-9822.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200011
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001107

AB **Neuroligin** and neurexin form an intercellular adhesion complex sufficient to trigger formation of functional presynaptic elements in vitro. This single molecular interaction appears to initiate clustering of synaptic vesicles, assembly of vesicle-release machinery and morphological changes at the presynaptic membrane.

L15 ANSWER 10 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 5
ACCESSION NUMBER: 2000:487688 CAPLUS
DOCUMENT NUMBER: 133:173450
TITLE: The making of a synapse: target-derived signals and presynaptic differentiation
AUTHOR(S): Davis, Graeme W.
CORPORATE SOURCE: Department of Biochemistry, University of California, San Francisco, San Francisco, CA, 94143, USA
SOURCE: Neuron (2000), 26(3), 551-554

CODEN: NERNET; ISSN: 0896-6273
PUBLISHER: Cell Press
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review, with 18 refs. The topics discussed include: Wnt signaling and synaptogenesis; Wnt cytoskeletal regulation and synaptogenesis; the **neuroligin**-neurexin complex; **neuroligin**-neurexin complex signaling during synapse formation; and interpreting sufficiency without genetic necessity.

L15 ANSWER 11 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:813901 CAPLUS
DOCUMENT NUMBER: 133:360242
TITLE: Interaction of **neuroligin** 1 and .beta.-neurexin
AUTHOR(S): Hasegawa, Hana
CORPORATE SOURCE: Dep. Psychiatry, Yokohama City Univ. Sch. Med., Yokohama, 236-0004, Japan
SOURCE: Yokohama Igaku (2000), 51(5), 507-514
CODEN: YKIGAK; ISSN: 0372-7726
PUBLISHER: Yokohama-shiritsu Daigaku Igakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB **Neuroligins** (NL) are a family of cell adhesion mols. initially identified in the central nervous system of the rats. NL makes a heteromeric interaction with .beta.-neurexin (.beta.Nx) in a calcium dependent manner at the synapses. The interactions require a certain spliced variant of .beta.Nx. To analyze the important sites and determinants for their binding, we made EF-hand mutants of NL1 by site-directed mutagenesis and assayed their binding activities with immobilized .beta.Nx by affinity chromatog. Furthermore we assumed another binding site outside the EF-hand, which is S-laminin's binding motif (LRE sequence) in NL1, analyzed it in a same way with EF-hand region. Both EF-hand region and LRE sequence mutants of NL1 showed decreased binding activities with .beta.Nx, so both regions may play an important role for their heteromeric interactions.

L15 ANSWER 12 OF 42 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 2002:155731 BIOSIS
DOCUMENT NUMBER: PREV200200155731
TITLE: Induction of presynaptic differentiation in the central nervous system.
AUTHOR(S): Scheiffele, Peter [Reprint author]; Diaz, Elva; Choih, Jenny; Fan, Jinhong; Fetter, Richard; Serafini, Tito
CORPORATE SOURCE: Molecular and Cell Biology, UC Berkeley, 201 LSA, Berkeley, CA, 94720, USA
SOURCE: Molecular Biology of the Cell, (Dec., 2000) Vol. 11, No. Supplement, pp. 472a. print.
Meeting Info.: 40th American Society for Cell Biology Annual Meeting. San Francisco, CA, USA. December 09-13, 2000. American Society for Cell Biology.
CODEN: MBCEEV. ISSN: 1059-1524.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 21 Feb 2002
Last Updated on STN: 26 Feb 2002

L15 ANSWER 13 OF 42 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 2000:881625 SCISEARCH
THE GENUINE ARTICLE: 335GW
TITLE: **Neuroligins** and synapse formation
AUTHOR: Brose N (Reprint); Varoqueaux F; Neeb A
CORPORATE SOURCE: MAX PLANCK INST, GOTTINGEN, GERMANY
COUNTRY OF AUTHOR: GERMANY
SOURCE: EUROPEAN JOURNAL OF NEUROSCIENCE, (OCT 2000) Vol. 12, Supp. [S], pp. 447-447.
Publisher: BLACKWELL SCIENCE LTD, P O BOX 88, OSNEY MEAD, OXFORD OX2 0NE, OXON, ENGLAND.
ISSN: 0953-816X.
DOCUMENT TYPE: Conference; Journal

FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 0

L15 ANSWER 14 OF 42 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 2000:373007 BIOSIS
DOCUMENT NUMBER: PREV200000373007
TITLE: **Neuroligins** and synapse formation.
AUTHOR(S): Brose, N. [Reprint author]; Varoqueaux, F. [Reprint author]; Neeb, A. [Reprint author]
CORPORATE SOURCE: Fur Experimentelle Medizin, A6 Milelekukane Neurolobioligie, Max Planck Inst, Gottingen, Germany
SOURCE: European Journal of Neuroscience, (2000) Vol. 12, No. Supplement 11, pp. 447. print.
Meeting Info.: Meeting of the Federation of European Neuroscience Societies. Brighton, UK. June 24-28, 2000.
ISSN: 0953-816X.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 30 Aug 2000
Last Updated on STN: 8 Jan 2002

L15 ANSWER 15 OF 42 MEDLINE on STN DUPLICATE 6
ACCESSION NUMBER: 2000231756 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10767552
TITLE: The structure and expression of the human **neuroligin**-3 gene.
AUTHOR: Philibert R A; Winfield S L; Sandhu H K; Martin B M; Ginns E I
CORPORATE SOURCE: Department of Psychiatry, University of Iowa, Rm 2-126b Psychiatry Research/MEB, Iowa City, IA 52242-1000, USA.. robertpphilibert@uiowa.edu
SOURCE: Gene, (2000 Apr 4) 246 (1-2) 303-10.
Journal code: 7706761. ISSN: 0378-1119.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF217411; GENBANK-AF217412; GENBANK-AF217413
ENTRY MONTH: 200005
ENTRY DATE: Entered STN: 20000613
Last Updated on STN: 20000613
Entered Medline: 20000531

AB The **neuroligins** are a family of proteins that are thought to mediate cell to cell interactions between neurons. During the sequencing at an Xq13 locus associated with a mental retardation syndrome in some studies, we discovered a portion of the human orthologue of the rat **neuroligin**-3 gene. We now report the structure and the expression of that gene. The gene spans approximately 30kb and contains eight exons. Unlike the rat gene, it codes for at least two mRNAs and at least one of which is expressed outside the CNS. Interestingly, the putative promoter for the gene overlaps the last exon of the neighboring HOPA gene and is located less than 1kb from an OPA element in which a polymorphism associated with mental retardation is found. These findings suggest a possible role for the **neuroligin** gene in mental retardation and that the role of the gene in humans may differ from its role in rats.

L15 ANSWER 16 OF 42 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 2000:353737 BIOSIS
DOCUMENT NUMBER: PREV200000353737
TITLE: **Neuroligin** 3 is expressed in a wide range of glia during development.
AUTHOR(S): Gilbert, Mary M. [Reprint author]; Smith, Jeff [Reprint author]; Roskams, Angela-Jane; Auld, Vanessa J. [Reprint author]
CORPORATE SOURCE: Dept. of Zoology, Univ. of British Columbia, Vancouver, BC, Canada
SOURCE: Developmental Biology, (June 1, 2000) Vol. 222, No. 1, pp. 256. print.
Meeting Info.: Fifty-ninth Annual Meeting of the Society

for Developmental Biology. Boulder, Colorado, USA. June 07-11, 2000. Society for Developmental Biology.
CODEN: DEBIAO. ISSN: 0012-1606.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 16 Aug 2000
Last Updated on STN: 8 Jan 2002

L15 ANSWER 17 OF 42 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 2000:591428 SCISEARCH
THE GENUINE ARTICLE: 323AN
TITLE: **Neuroligin** 3 is expressed in a wide range of glia during development.
AUTHOR: Gilbert M M (Reprint); Smith J; Roskams A J; Auld V J
CORPORATE SOURCE: UNIV BRITISH COLUMBIA, DEPT ZOOL, VANCOUVER, BC, CANADA; UNIV BRITISH COLUMBIA, CTR MED & MOL THERAPEUT, VANCOUVER, BC V5Z 1M9, CANADA
COUNTRY OF AUTHOR: CANADA
SOURCE: DEVELOPMENTAL BIOLOGY, (1 JUN 2000) Vol. 222, No. 1, pp. 202-202.
Publisher: ACADEMIC PRESS INC, 525 B ST, STE 1900, SAN DIEGO, CA 92101-4495.
ISSN: 0012-1606.
DOCUMENT TYPE: Conference; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 0

L15 ANSWER 18 OF 42 MEDLINE on STN DUPLICATE 7
ACCESSION NUMBER: 2000201867 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10739260
TITLE: Common EF-hand motifs in cholinesterases and **neuroligins** suggest a role for Ca2+ binding in cell surface associations.
AUTHOR: Tsigelny I; Shindyalov I N; Bourne P E; Sudhof T C; Taylor P
CORPORATE SOURCE: Department of Pharmacology, University of California, San Diego, La Jolla 92093-0654, USA.. itsigeln@ucsd.edu
CONTRACT NUMBER: GM18360 (NIGMS)
MH-52804 (NIMH)
SOURCE: Protein science : a publication of the Protein Society, (2000 Jan) 9 (1) 180-5.
Journal code: 9211750. ISSN: 0961-8368.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200005
ENTRY DATE: Entered STN: 20000518
Last Updated on STN: 20000518
Entered Medline: 20000505

AB Comparisons of protein sequence via cyclic training of Hidden Markov Models (HMMs) in conjunction with alignments of three-dimensional structure, using the Combinatorial Extension (CE) algorithm, reveal two putative EF-hand metal binding domains in acetylcholinesterase. Based on sequence similarity, putative EF-hands are also predicted for the **neuroligin** family of cell surface proteins. These predictions are supported by experimental evidence. In the acetylcholinesterase crystal structure from Torpedo californica, the first putative EF-hand region binds the Zn2+ found in the heavy metal replacement structure. Further, the interaction of **neuroligin** 1 with its cognate receptor neurexin depends on Ca2+. Thus, members of the alpha,beta hydrolase fold family of proteins contain potential Ca2+ binding sites, which in some family members may be critical for heterologous cell associations.

L15 ANSWER 19 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:605417 CAPLUS
DOCUMENT NUMBER: 131:255494
TITLE: Characterization of **neuroligins**: novel cell adhesion molecules in neurons

AUTHOR(S): Nguyen, Thai Tran
CORPORATE SOURCE: Southwestern Medical Center, Univ. of Texas, Dallas, TX, USA
SOURCE: (1999) No pp., Given Avail.: UMI, Order No. DA0800034 From: Diss. Abstr. Int., B 1999, 60(4), 1461
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable

L15 ANSWER 20 OF 42 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 2000:148965 BIOSIS
DOCUMENT NUMBER: PREV200000148965
TITLE: Distribution of **neuroligins** mRNAs in the adult rat brain.
AUTHOR(S): Song, Ji-Ying [Reprint author]; Varoqueaux, Frederique [Reprint author]; Neeb, Antje [Reprint author]; Brose, Nils [Reprint author]
CORPORATE SOURCE: Abt. Mol. Neurobiologie, MPI fuer Experimentelle Medizin, Goettingen, Germany
SOURCE: Society for Neuroscience Abstracts, (1999) Vol. 25, No. 1-2, pp. 2284. print.
Meeting Info.: 29th Annual Meeting of the Society for Neuroscience. Miami Beach, Florida, USA. October 23-28, 1999. Society for Neuroscience.
ISSN: 0190-5295.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 19 Apr 2000
Last Updated on STN: 4 Jan 2002

L15 ANSWER 21 OF 42 MEDLINE on STN DUPLICATE 8
ACCESSION NUMBER: 1999128369 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9927700
TITLE: **Neuroligin** 1 is a postsynaptic cell-adhesion molecule of excitatory synapses.
AUTHOR: Song J Y; Ichtchenko K; Sudhof T C; Brose N
CORPORATE SOURCE: Max-Planck-Institut fur Experimentelle Medizin, Abteilung Molekulare Neurobiologie, Hermann-Rein-Strasse 3, D-37075 Gottingen, Germany.
CONTRACT NUMBER: RO1-MH50824 (NIMH)
SOURCE: Proceedings of the National Academy of Sciences of the United States of America, (1999 Feb 2) 96 (3) 1100-5.
Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199903
ENTRY DATE: Entered STN: 19990324
Last Updated on STN: 19990324
Entered Medline: 19990305

AB At the synapse, presynaptic membranes specialized for vesicular traffic are linked to postsynaptic membranes specialized for signal transduction. The mechanisms that connect pre- and postsynaptic membranes into synaptic junctions are unknown. **Neuroligins** and beta-neurexins are neuronal cell-surface proteins that bind to each other and form asymmetric intercellular junctions. To test whether the **neuroligin** /beta-neurexin junction is related to synapses, we generated and characterized monoclonal antibodies to **neuroligin** 1. With these antibodies, we show that **neuroligin** 1 is synaptic. The neuronal localization, subcellular distribution, and developmental expression of **neuroligin** 1 are similar to those of the postsynaptic marker proteins PSD-95 and NMDA-R1 receptor. Quantitative immunogold electron microscopy demonstrated that **neuroligin** 1 is clustered in synaptic clefts and postsynaptic densities. Double immunofluorescence labeling revealed that **neuroligin** 1 colocalizes with glutamatergic but not gamma-aminobutyric acid (GABA)ergic synapses. Thus **neuroligin** 1 is a synaptic cell-adhesion molecule that is enriched in postsynaptic densities where it may recruit receptors, channels, and signal-transduction molecules to synaptic sites of cell adhesion. In

addition, the **neuroligin**/beta-neurexin junction may be involved in the specification of excitatory synapses.

L15 ANSWER 22 OF 42 MEDLINE on STN DUPLICATE 9
ACCESSION NUMBER: 2000020371 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10551945
TITLE: Synaptic cell adhesion proteins and synaptogenesis in the mammalian central nervous system.
AUTHOR: Brose N
CORPORATE SOURCE: Max-Planck-Institut fur Experimentelle Medizin, AG Molekulare Neurobiologie, Hermann-Rein-Strasse 3, D-37075 Gottingen, Germany.. brose@mail.mpiem.gwdg.de
SOURCE: Die Naturwissenschaften, (1999 Nov) 86 (11) 516-24. Ref: 59
Journal code: 0400767. ISSN: 0028-1042.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200001
ENTRY DATE: Entered STN: 20000114
Last Updated on STN: 20000114
Entered Medline: 20000105

AB Synapses are asymmetric cell-cell contacts, typically formed between the presynaptic axon terminal of a "sending" nerve cell and the postsynaptic dendrite, the soma or - in some cases - the axon of a "receiving" one. The presynaptic axon terminal is specialized for the complex membrane trafficking mechanisms that underlie regulated secretion of neurotransmitter, while the postsynapse is uniquely specialized for signal transduction. Synaptogenesis, the formation of functional synapses, is the final step in the development of the central nervous system. In the mammalian brain it results in the establishment of a neural network, connecting some 10(12) nerve cells with up to 10(15) synapses. In principle, synaptogenesis takes place in two consecutive steps that are most likely mediated by cell adhesion molecules. First, an arriving axonal growth cone identifies its appropriate partner cell, creating an initial contact, and, second, specific axonal and dendritic protein components are recruited to this initial contact site, forming a functional synapse. Three cell adhesion systems have recently been shown to be specifically enriched at synaptic contacts: the cadherin/catenin system, the cadherinlike neuronal receptors, and the beta-neurexin/ **neuroligin** system. Components of all three cell adhesion systems have been localized to synaptic contacts using immunogold electron microscopy but are also present outside of synapses. The present short review discusses the possible role of these synaptic cell adhesion molecules in synaptogenesis.

L15 ANSWER 23 OF 42 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 1999:809940 SCISEARCH
THE GENUINE ARTICLE: 226QW
TITLE: Analysis of the structure and functional domains of **neuroligin**.
AUTHOR: Hasegawa H (Reprint); Tsigelny L; Matsumura T; Sudhof T; Taylor P
CORPORATE SOURCE: UNIV CALIF SAN DIEGO, DEPT PHARMACOL, LA JOLLA, CA 92093; UNIV TEXAS, SW MED CTR, HHMI, DEPT MOL GENET, DALLAS, TX 75235
COUNTRY OF AUTHOR: USA
SOURCE: FASEB JOURNAL, (12 MAR 1999) Vol. 13, No. 4, Part 1, Supp. [S], pp. A472-A472.
Publisher: FEDERATION AMER SOC EXP BIOL, 9650 ROCKVILLE PIKE, BETHESDA, MD 20814-3998.
ISSN: 0892-6638.
DOCUMENT TYPE: Conference; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 0

L15 ANSWER 24 OF 42 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 1999:181031 BIOSIS
DOCUMENT NUMBER: PREV199900181031
TITLE: Analysis of the structure and functional domains of **neuroligin.**
AUTHOR(S): Hasegawa, H. [Reprint author]; Tsigelny, I. [Reprint author]; Matsumura, T. [Reprint author]; Sudhof, T.; Taylor, P. [Reprint author]
CORPORATE SOURCE: Dep. Pharmacol., Univ. Calif., San Diego, La Jolla, CA 92093, USA
SOURCE: FASEB Journal, (March 12, 1999) Vol. 13, No. 4 PART 1, pp. A472. print.
Meeting Info.: Annual Meeting of the Professional Research Scientists for Experimental Biology 99. Washington, D.C., USA. April 17-21, 1999.
CODEN: FAJOEC. ISSN: 0892-6638.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 5 May 1999
Last Updated on STN: 5 May 1999

L15 ANSWER 25 OF 42 MEDLINE on STN DUPLICATE 10
ACCESSION NUMBER: 1999182311 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10080919
TITLE: Interaction of S-SCAM with neural plakophilin-related Armadillo-repeat protein/delta-catenin.
AUTHOR: Ide N; Hata Y; Deguchi M; Hirao K; Yao I; Takai Y
CORPORATE SOURCE: Takai Biotimer Project, ERATO, Japan Science and Technology Corporation, c/o JCR Pharmaceuticals Co. Ltd., Kobe, 651-2241, Japan.
SOURCE: Biochemical and biophysical research communications, (1999 Mar 24) 256 (3) 456-61.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199904
ENTRY DATE: Entered STN: 19990504
Last Updated on STN: 19990504
Entered Medline: 19990419
AB Synaptic scaffolding molecule (S-SCAM) is a multiple PDZ domain-containing protein, which interacts with **neuroligin**, a cell adhesion molecule, and the NMDA receptor. In this study, we searched for S-SCAM-interacting proteins and obtained a neuralplakophilin-related armadillo-repeat protein (NPRAP)/delta-catenin. NPRAP/delta-catenin bound to the last PDZ domain of S-SCAM via its carboxyl-terminus in three different cell-free assay systems, was coimmunoprecipitated with S-SCAM from rat crude synaptosomes, and was localized at the excitatory synapses in rat hippocampal neurons. NPRAP/delta-catenin may be implicated in the molecular organization of synaptic junctions through the interaction with S-SCAM.

L15 ANSWER 26 OF 42 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 1999:523249 SCISEARCH
THE GENUINE ARTICLE: 211WG
TITLE: Anticholinesterases induce multigenic transcriptional feedback response suppressing cholinergic neurotransmission
AUTHOR: Kaufer D; Friedman A; Seidman S; Soreq H (Reprint)
CORPORATE SOURCE: HEBREW UNIV JERUSALEM, ALEXANDER SILBERMAN INST LIFE SCI, DEPT BIOL CHEM, IL-91904 JERUSALEM, ISRAEL (Reprint); HEBREW UNIV JERUSALEM, ALEXANDER SILBERMAN INST LIFE SCI, DEPT BIOL CHEM, IL-91904 JERUSALEM, ISRAEL; BEN GURION UNIV NEGEV, FAC HLTH SCI, DEPT PHYSIOL, IL-84105 BEER SHEVA, ISRAEL; BEN GURION UNIV NEGEV, FAC HLTH SCI, DEPT NEUROSURG, IL-84105 BEER SHEVA, ISRAEL; BEN GURION UNIV NEGEV, ZLOTOWSKI CTR NEUROSCI, IL-84105 BEER SHEVA, ISRAEL
COUNTRY OF AUTHOR: ISRAEL
SOURCE: CHEMICO-BIOLOGICAL INTERACTIONS, (14 MAY 1999) Vol. 120,

pp. 349-360.
Publisher: ELSEVIER SCI IRELAND LTD, CUSTOMER RELATIONS MANAGER, BAY 15, SHANNON INDUSTRIAL ESTATE CO, CLARE, IRELAND.
ISSN: 0009-2797.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 42
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Cholinesterase inhibitors (anti-ChEs) include a wide range of therapeutic, agricultural and warfare agents all aimed to inhibit the catalytic activity of the acetylcholine (ACh) hydrolysing enzyme acetylcholinesterase (AChE). In addition to promoting immediate excitation of cholinergic neurotransmission through transient elevation of synaptic ACh levels, anti-ChEs exposure is associated with long-term effects reminiscent of post-traumatic stress disorder. This suggested that exposure to anti-ChEs leads to persistent changes in brain proteins and called for exploring the mechanism(s) through which such changes could occur. For this purpose, we established an in vitro system of perfused, sagittal mouse brain slices which sustains authentic transcriptional responses for over 10 h and enables the study of gene regulation under controlled exposure to anti-ChEs. Slices were exposed to either organophosphate or cabamate anti-ChEs, both of which induced within 10 min excessive overexpression of the mRNA. encoding the immediate early response transcription factor c-Fos. Twenty minutes later we noted 8-fold increases over control levels in AChE mRNA, accompanied by a 3-fold decrease in the mRNAs encoding for the ACh synthesizing enzyme choline acetyltranferase (ChAT) and the vesicular ACh transporter (VAChT). No changes were detected in synaptophysin mRNA levels. These modulations in gene expression paralleled those taking place under in vivo exposure. Of particular concern is the possibility that feedback processes leading to elevated levels of brain AChE may be similarly associated with low-level exposure to common organophosphorous anti-cholinesterases, and lead to long-term deleterious changes in cognitive functions. (C) 1999 Elsevier Science Ireland Ltd. All rights reserved.

L15 ANSWER 27 OF 42 MEDLINE on STN DUPLICATE 11
ACCESSION NUMBER: 1999371187 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10443587
TITLE: Pathophysiological implications of the structural organization of the excitatory synapse.
AUTHOR: Cattabeni F; Gardoni F; Di Luca M
CORPORATE SOURCE: Institute of Pharmacological Sciences, School of Pharmacy, University of Milan, Italy.
SOURCE: European journal of pharmacology, (1999 Jun 30) 375 (1-3) 339-47. Ref: 72
Journal code: 1254354. ISSN: 0014-2999.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199910
ENTRY DATE: Entered STN: 19991026
Last Updated on STN: 19991026
Entered Medline: 19991008

AB The glutamatergic synapse is the key structure in the development of activity-dependent synaptic plasticity in the central nervous system. The analysis of the complex biochemical mechanisms at the basis of the long-term changes in synaptic efficacy have received a tremendous impulse by the observation that the post-synaptic constituents of the synapse can be separated and purified through a simple procedure involving detergent treatment of synaptosomes and differential centrifugation. In this fraction, called post-synaptic density (PSD), the functional interactions of its constituents are preserved. The various subunits of ionotropic glutamate receptors are held in register with the presynaptic active zone through their interaction with linker proteins. N-methyl-D-aspartate (NMDA) subunits NR2A and NR2B, bind to the PSD protein called PSD-95, which in turn binds **neuroligins**, providing a handle for

interacting with neurexin, located in the plasma membrane at the presynaptic active zone. Additional clustering of NMDA receptors is provided through the binding of NRI subunits to the cytoskeletal protein alpha-actinin-2. AMPA (alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid) and kainate receptors are other important constituents of PSDs and bind to different anchoring proteins. Phosphorylation processes have long been known to modulate NMDA receptor functional activity: the finding that several protein kinases, particularly Ca2+/Calmodulin-dependent protein kinase II and protein tyrosine kinases of the src family, are major constituents of PSDs has allowed to demonstrate that these enzymes are localized in a strategic position of the glutamatergic synapse, so that their activation provides a means for NMDA receptor function regulation upon its activation. The relevance of these mechanisms has been demonstrated in experimental models of pathologies involving deficits in synaptic plasticity, such as in streptozotocin-induced diabetes and in an animal model of prenatal induced ablation of hippocampal neurons. Both animal models display disturbances in long-term potentiation and cognitive deficits, thus providing in vivo models to study pathology related changes in both the structure and the function of the excitatory synapse.

L15 ANSWER 28 OF 42 MEDLINE on STN DUPLICATE 12
ACCESSION NUMBER: 2000017969 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10548487
TITLE: nRap GEP: a novel neural GDP/GTP exchange protein for rap1 small G protein that interacts with synaptic scaffolding molecule (S-SCAM).
AUTHOR: Ohtsuka T; Hata Y; Ide N; Yasuda T; Inoue E; Inoue T; Mizoguchi A; Takai Y
CORPORATE SOURCE: Department of Molecular Biology and Biochemistry, Osaka University Graduate School of Medicine/Faculty of Medicine, Suita, 565-0871, Japan.
SOURCE: Biochemical and biophysical research communications, (1999 Nov) 265 (1) 38-44.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199912
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991217

AB Synaptic scaffolding molecule (S-SCAM) has six PDZ domains through which it interacts with N-methyl-d-aspartate receptors and **neuroligin** at synaptic junctions. We isolated here a novel S-SCAM-binding protein. This protein has one PDZ, one Ras association, one Ras GDP/GTP exchange protein (Ras GEP) domain, and one C-terminal consensus motif for binding to PDZ domains. We named it nRap GEP (neural Rap GEP). nRap GEP moreover has an incomplete cyclic AMP (cAMP)-binding (CAB) domain. The domain organization of nRap GEP is similar to that of Epac/cAMP-guanine nucleotide exchange factor (GEF) I, except that Epac/cAMP-GEFI has complete CAB and Ras GEP domains but lacks the other two domains and the C-terminal motif. nRap GEP showed GEP activity for Rap1 but did not bind cAMP. nRap GEP was specifically expressed in rat brain. Immunohistochemical analysis revealed that nRap GEP and S-SCAM were localized at synaptic areas of the cerebellum. These results suggest that nRap GEP is a novel neural Rap1-specific GEP which is associated with S-SCAM.

L15 ANSWER 29 OF 42 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 1999:38480 SCISEARCH
THE GENUINE ARTICLE: 151KR
TITLE: Neurexophilin binding to alpha-neurexins - A single LNS domain functions as an independently folding ligand-binding unit
AUTHOR: Missler M; Hammer R E; Sudhof T C (Reprint)
CORPORATE SOURCE: UNIV TEXAS, SW MED SCH, HOWARD HUGHES MED INST, RM Y5-322, 5323 HARRY HINES BLVD, DALLAS, TX 75235 (Reprint); UNIV TEXAS, SW MED SCH, HOWARD HUGHES MED INST, DALLAS, TX

75235; UNIV TEXAS, SW MED SCH, CTR BASIC NEUROSCI, DALLAS, TX 75235; UNIV TEXAS, SW MED SCH, DEPT MOL GENET, DALLAS, TX 75235; UNIV TEXAS, SW MED SCH, DEPT BIOCHEM, DALLAS, TX 75235

COUNTRY OF AUTHOR: USA

SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (25 DEC 1998) Vol. 273, No. 52, pp. 34716-34723.
Publisher: AMER SOC BIOCHEMISTRY MOLECULAR BIOLOGY INC, 9650 ROCKVILLE PIKE, BETHESDA, MD 20814.
ISSN: 0021-9258.

DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 34

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB alpha-Neurexins (I alpha, II alpha, and III alpha) are receptor-like proteins expressed in hundreds of isoforms on the neuronal cell surface. The extracellular domains of alpha-neurexins are composed of six LNS repeats, named after homologous sequences in the Laminin A G domain, Neurexins, and Sex hormone-binding globulin, with three interspersed epidermal growth factor-like domains. Purification of neurexin I alpha revealed that it is tightly complexed to a secreted glycoprotein called neurexophilin 1, Neurexophilin 1 is a member of a family of at least four genes and resembles a neuropeptide, suggesting a function as an endogenous ligand for alpha-neurexins, We have now used recombinant proteins and knockout mice to investigate which isoforms and domains of different neurexins and neurexophilins interact with each other. We show that neurexophilins 1 and 3 but not 4 (neurexophilin 2 is not expressed in rodents) bind to a single individual LNS domain, the second overall LNS domain in all three alpha-neurexins, Although this domain is alternatively spliced, all splice variants bind, suggesting that alternative splicing does not regulate binding, Using homologous recombination to disrupt the neurexophilin 1 gene, we generated mutant mice that do not express detectable neurexophilin 1 mRNA, Mice lacking neurexophilin 1 are viable with no obvious morbidity or mortality. However, homozygous mutant mice exhibit male sterility, probably because homologous recombination resulted in the co-insertion into the neurexophilin gene of herpes simplex virus thymidine kinase, which is known to cause male sterility. In the neurexophilin 1 knockout mice, neurexin I alpha is complexed with neurexophilin 3 but not neurexophilin 4, suggesting that neurexophilin 1 is redundant with neurexophilin 3 and that neurexophilins 1 and 3 but not 4 bind to neurexins, This hypothesis was confirmed using expression experiments, Our data reveal that the six LNS and three epidermal growth factor domains of neurexins are independently folding ligand-binding domains that may interact with distinct targets, The results support the notion that neurexophilins represent a family of extracellular signaling molecules that interact with multiple receptors including all three alpha-neurexins.

L15 ANSWER 30 OF 42 MEDLINE on STN DUPLICATE 13

ACCESSION NUMBER: 1998361985 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9694864
TITLE: A novel multiple PDZ domain-containing molecule interacting with N-methyl-D-aspartate receptors and neuronal cell adhesion proteins.

AUTHOR: Hirao K; Hata Y; Ide N; Takeuchi M; Irie M; Yao I; Deguchi M; Toyoda A; Sudhof T C; Takai Y
CORPORATE SOURCE: Takai Biotimer Project, ERATO, Japan Science and Technology Corporation, c/o JCR Pharmaceuticals Co. Ltd., 2-2-10 Murotani, Nishi-ku, Kobe 651-2241, Japan.

SOURCE: Journal of biological chemistry, (1998 Aug 14) 273 (33) 21105-10.
Journal code: 2985121R. ISSN: 0021-9258.

PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF034863
ENTRY MONTH: 199809
ENTRY DATE: Entered STN: 19980925
Last Updated on STN: 19980925

Entered Medline: 19980914

AB At synaptic junctions, pre- and postsynaptic membranes are connected by cell adhesion and have distinct structures for specialized functions. The presynaptic membranes have a machinery for fast neurotransmitter release, and the postsynaptic membranes have clusters of neurotransmitter receptors. The molecular mechanism of the assembly of synaptic junctions is not yet clear. Pioneering studies identified postsynaptic density (PSD)-95/SAP90 as a prototypic synaptic scaffolding protein to maintain the structure of synaptic junctions. PSD-95/SAP90 belongs to a family of membrane-associated guanylate kinases and binds N-methyl-D-aspartate receptors, potassium channels, and **neuroligins** through the PDZ domains and GKAP/SAPAP/DAP through the guanylate kinase (GK) domain. We performed here a yeast two-hybrid screening for SAPAP-interacting molecules and identified a novel protein that has an inverse structure of membrane-associated guanylate kinases with an NH2-terminal GK-like domain followed by two WW and five PDZ domains. It binds SAPAP through the GK-like domain and NMDA receptors and **neuroligins** through the PDZ domains. We named this protein S-SCAM (synaptic scaffolding molecule) because S-SCAM may assemble receptors and cell adhesion proteins at synaptic junctions.

L15 ANSWER 31 OF 42 MEDLINE on STN DUPLICATE 14
ACCESSION NUMBER: 1999030673 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9811904
TITLE: Functional redundancy of acetylcholinesterase and **neuroligin** in mammalian neuritogenesis.
AUTHOR: Grifman M; Galyam N; Seidman S; Soreq H
CORPORATE SOURCE: Department of Biological Chemistry, Institute of Life Sciences, Hebrew University of Jerusalem, 91904, Jerusalem, Israel.
SOURCE: Proceedings of the National Academy of Sciences of the United States of America, (1998 Nov 10) 95 (23) 13935-40. Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF087945
ENTRY MONTH: 199812
ENTRY DATE: Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981216

AB Accumulated evidence attributes noncatalytic morphogenic activitie(s) to acetylcholinesterase (AChE). Despite sequence homologies, functional overlaps between AChE and catalytically inactive AChE-like cell surface adhesion proteins have been demonstrated only for the Drosophila protein neurotactin. Furthermore, no mechanism had been proposed to enable signal transduction by AChE, an extracellular enzyme. Here, we report impaired neurite outgrowth and loss of neurexin Ialpha mRNA under antisense suppression of AChE in PC12 cells (AS-ACHE cells). Neurite growth was partially rescued by addition of recombinant AChE to the solid substrate or by transfection with various catalytically active and inactive AChE variants. Moreover, overexpression of the homologous neurexin I ligand, **neuroligin**-1, restored both neurite extension and expression of neurexin Ialpha. Differential PCR display revealed expression of a novel gene, nitzin, in AS-ACHE cells. Nitzin displays 42% homology to the band 4.1 protein superfamily capable of linking integral membrane proteins to the cytoskeleton. Nitzin mRNA is high throughout the developing nervous system, is partially colocalized with AChE, and increases in rescued AS-ACHE cells. Our findings demonstrate redundant neurite growth-promoting activities for AChE and **neuroligin** and implicate interactions of AChE-like proteins and neurexins as potential mediators of cytoarchitectural changes supporting neuritogenesis.

L15 ANSWER 32 OF 42 MEDLINE on STN DUPLICATE 15
ACCESSION NUMBER: 1998421784 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9751164
TITLE: The making of neurexins.
AUTHOR: Missler M; Fernandez-Chacon R; Sudhof T C
CORPORATE SOURCE: Department of Molecular Genetics and Howard Hughes Medical Institute, University of Texas Southwestern Medical Center,

Dallas 75235, USA.
CONTRACT NUMBER: R01-MH52804 (NIMH)
SOURCE: Journal of neurochemistry, (1998 Oct) 71 (4) 1339-47. Ref: 37
Journal code: 2985190R. ISSN: 0022-3042.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199810
ENTRY DATE: Entered STN: 19981021
Last Updated on STN: 19981021
Entered Medline: 19981014

AB Neurexins are neuronal cell-surface proteins with up to thousands of isoforms. These isoforms are generated by alternative splicing of transcripts from six promoters in three genes. The structure of neurexins resembles cell-surface receptors with a modular architecture suggestive of a sequential assembly during evolution. Neurexins probably perform multiple functions in the brain. They participate in intercellular junctions in which beta-neurexins tightly bind to a second class of neuronal cell-surface receptors called **neuroligins**. Intracellularly, the neurexin/**neuroligin** junction is bound by CASK on the neurexin side and PSD95 on the **neuroligin** side. CASK and PSD95 are homologous membrane-associated guanylate kinases that bind to the neurexin/**neuroligin** junction via PDZ domains, creating an asymmetric junction (neurexin/**neuroligin**) with similar intracellular binding partners. In addition to a function as cell-adhesion molecules, neurexins may also serve as a signalling receptor, because a class of ligands for alpha-neurexins called neurexophilins is similar to peptide hormones. Finally, at least one neurexin isoform, neurexin Ialpha, represents a high-affinity receptor for alpha-latrotoxin, which is a potent excitatory neurotoxin. Thus, neurexins constitute a large family of neuronal receptors that may be involved in multiple interactive functions between neurons.

L15 ANSWER 33 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:40371 CAPLUS
DOCUMENT NUMBER: 130:106672
TITLE: Calcium binding and oligomerization of **neuroligin** 1
AUTHOR(S): Matsumura, Takehiko
CORPORATE SOURCE: Sch. Med., Yokohama City Univ., Yokohama, 236-0004, Japan
SOURCE: Yokohama Igaku (1998), 49(5), 843-849
CODEN: YKIGAK; ISSN: 0372-7726
PUBLISHER: Yokohama-shiritsu Daigaku Igakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB **Neuroligins** are neuronal specific cell adhesion mols. binding to .beta.-neurexins. I have developed a stable cell line expressing recombinant sol. **Neuroligin** 1 (NL1) with an N-terminal FLAG epitope (DYKDDDDK) and a stop codon inserted before the transmembrane region. Recombinant NL1 was purified with affinity chromatog. and gel filtration. Calcium binding assays revealed that NL1 has a high affinity calcium binding site (Kd = .apprx.0.3 .mu.M). In addn., my results have shown that NL1 forms oligomers by chem. crosslinking.

L15 ANSWER 34 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:262912 CAPLUS
DOCUMENT NUMBER: 133:86039
TITLE: Metal binding motifs in cholinesterases and **neuroligins**: Structural comparison
AUTHOR(S): Tsigelny, Igor; Matsumura, Takehiko; Sudhof, Thomas; Taylor, Palmer
CORPORATE SOURCE: Dept. of Pharmacology, University of California, La Jolla, CA, 92093-0636, USA
SOURCE: Structure and Function of Cholinesterases and Related Proteins, [International Meeting on Cholinesterases and Related Proteins], 6th, La Jolla, CA, Mar. 20-24,

1998 (1998), 407-412. Editor(s): Doctor, Bhupendra P. Plenum Publishing Corp.: New York, N. Y.
CODEN: 68VDA8
DOCUMENT TYPE: Conference
LANGUAGE: English

AB Using the crystal structure templates for Torpedo californica and mouse acetylcholinesterases, we created a homol. model of **neuroligin**. The .alpha.-.beta. hydrolase fold characteristic of cholinesterase family reveals that the two mols. possess a common structural core with substantial residue identity and the divergences in sequence and structure appear mainly at the tips of the solvent-exposed loops. Although **neuroligin** lacks an active center serine at the homologous position, other features such as a gorge leading to the active center appear to be present in **neuroligin**. Using the Hidden Markov Model presentation, we find a putative EF-hand Ca2+ binding region in **neuroligin** between residues 409 and 437. This corresponds to the homologous region between residues 331 and 359 in Torpedo acetylcholinesterase and is the region of Zn2+ binding in the acetylcholinesterase crystals. Created Hidden Markov Models reveal that the EF-hand regions may be subdivided into extracellular and intracellular types, a distinction which may reflect the large differences in free Ca2+ in extracellular and intracellular locations. The majority of EF-hand proteins fall into the intracellular group, but extracellular EF-hand proteins are represented by **neuroligin**, osteonectin and acetylcholinesterase.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 35 OF 42 MEDLINE on STN DUPLICATE 16
ACCESSION NUMBER: 1998313406 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9647694
TITLE: CIPP, a novel multivalent PDZ domain protein, selectively interacts with Kir4.0 family members, NMDA receptor subunits, neurexins, and **neuroligins**.
AUTHOR: Kurschner C; Mermelstein P G; Holden W T; Surmeier D J
CORPORATE SOURCE: Department of Developmental Neurobiology, Saint Jude Children's Research Hospital, Memphis, Tennessee, 38105, USA.. cornelia.kurschner@stjude.org
CONTRACT NUMBER: P30 CA21765 (NCI)
SOURCE: Molecular and cellular neurosciences, (1998 Jun) 11 (3) 161-72.
Journal code: 9100095. ISSN: 1044-7431.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF060539
ENTRY MONTH: 199807
ENTRY DATE: Entered STN: 19980731
Last Updated on STN: 19980731
Entered Medline: 19980723

AB We report a novel multivalent PDZ domain protein, CIPP (for channel-interacting PDZ domain protein), which is expressed exclusively in brain and kidney. Within the brain, the highest CIPP mRNA levels were found in neurons of the cerebellum, inferior colliculus, vestibular nucleus, facial nucleus, and thalamus. Furthermore, we identified the inward rectifier K+ (Kir) channel, Kir4.1 (also called "Kir1.2"), as a cellular CIPP ligand. Among several other Kir channels tested, only the closely related Kir4.2 (or "Kir1.3") also interacted with CIPP. In addition, specific PDZ domains within CIPP associated selectively with the C-termini of N-methyl-D-aspartate subtypes of glutamate receptors, as well as neurexins and **neuroligins**, cell surface molecules enriched in synaptic membranes. Thus, CIPP may serve as a scaffold that brings structurally diverse but functionally connected proteins into close proximity at the synapse. The functional consequences of CIPP expression on Kir4.1 channels were studied using whole-cell voltage clamp techniques in Kir4.1 transfected COS-7 cells. On average, Kir4.1 current densities were doubled by cotransfection with CIPP.

L15 ANSWER 36 OF 42 MEDLINE on STN DUPLICATE 17

ACCESSION NUMBER: 97467410 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9325340
TITLE: Binding properties of **neuroligin** 1 and neurexin 1beta reveal function as heterophilic cell adhesion molecules.
AUTHOR: Nguyen T; Sudhof T C
CORPORATE SOURCE: Department of Molecular Genetics and Howard Hughes Medical Institute, University of Texas Southwestern Medical Center, Dallas, Texas 75235, USA.
CONTRACT NUMBER: RO1-MH52804 (NIMH)
SOURCE: Journal of biological chemistry, (1997 Oct 10) 272 (41) 26032-9.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199711
ENTRY DATE: Entered STN: 19971224
Last Updated on STN: 19971224
Entered Medline: 19971113

AB beta-Neurexins and **neuroligins** are plasma membrane proteins that are displayed on the neuronal cell surface. We have now investigated the interaction of neurexin 1beta with **neuroligin** 1 to evaluate their potential to function as heterophilic cell adhesion molecules. Using detergent-solubilized **neuroligins** and secreted neurexin 1beta-IgG fusion protein, we observed binding of these proteins to each other only in the presence of Ca2+ and in no other divalent cation tested. Only neurexin 1beta lacking an insert in splice site 4 bound **neuroligins**, whereas neurexin 1beta containing an insert was inactive. Half-maximal binding required 1-3 microM free Ca2+, which probably acts by binding to **neuroligin** 1 but not to neurexin 1beta. To determine if neurexin 1beta and **neuroligin** 1 can also interact with each other when present in a native membrane environment on the cell surface, we generated transfected cell lines expressing **neuroligin** 1 and neurexin 1beta. Upon mixing different cell populations, we found that cells aggregate only if cells expressing neurexin 1beta are mixed with cells expressing **neuroligin** 1. Aggregation was dependent on Ca2+ and was inhibited by the addition of soluble neurexin 1beta lacking an insert in splice site 4 but not by the addition of neurexin 1beta containing an insert in splice site 4. We conclude that neurexin 1beta and **neuroligin** 1 (and, by extension, other beta-neurexins and **neuroligins**) function as heterophilic cell adhesion molecules in a Ca2+-dependent reaction that is regulated by alternative splicing of beta-neurexins.

L15 ANSWER 37 OF 42 MEDLINE on STN DUPLICATE 18
ACCESSION NUMBER: 97368339 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9223334
TITLE: Acetylcholinesterase-transgenic mice display embryonic modulations in spinal cord choline acetyltransferase and neurexin Ibeta gene expression followed by late-onset neuromotor deterioration.
AUTHOR: Andres C; Beeri R; Friedman A; Lev-Lehman E; Henis S; Timberg R; Shani M; Soreq H
CORPORATE SOURCE: Department of Biological Chemistry, The Hebrew University of Jerusalem, 91904 Israel.
SOURCE: Proceedings of the National Academy of Sciences of the United States of America, (1997 Jul 22) 94 (15) 8173-8.
Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199708
ENTRY DATE: Entered STN: 19970908
Last Updated on STN: 19980206
Entered Medline: 19970827

AB To explore the possibility that overproduction of neuronal acetylcholinesterase (AChE) confers changes in both cholinergic and morphogenic intercellular interactions, we studied developmental responses

to neuronal AChE overexpression in motoneurons and neuromuscular junctions of AChE-transgenic mice. Perikarya of spinal cord motoneurons were consistently enlarged from embryonic through adult stages in AChE-transgenic mice. Atypical motoneuron development was accompanied by premature enhancement in the embryonic spinal cord expression of choline acetyltransferase mRNA, encoding the acetylcholine-synthesizing enzyme choline acetyltransferase. In contrast, the mRNA encoding for neurexin-Ibeta, the heterophilic ligand of the AChE-homologous neuronal cell surface protein **neuroligin**, was drastically lower in embryonic transgenic spinal cord than in controls. Postnatal cessation of these dual transcriptional responses was followed by late-onset deterioration in neuromotor performance that was associated with gross aberrations in neuromuscular ultrastructure and with pronounced amyotrophy. These findings demonstrate embryonic feedback mechanisms to neuronal AChE overexpression that are attributable to both cholinergic and cell-cell interaction pathways, suggesting that embryonic neurexin Ibeta expression is concerted in vivo with AChE levels and indicating that postnatal changes in neuronal AChE-associated proteins may be involved in late-onset neuromotor pathologies.

L15 ANSWER 38 OF 42 MEDLINE on STN DUPLICATE 19
ACCESSION NUMBER: 97426629 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9278515
TITLE: Binding of **neuroligins** to PSD-95.
AUTHOR: Irie M; Hata Y; Takeuchi M; Ichtchenko K; Toyoda A; Hirao K; Takai Y; Rosahl T W; Sudhof T C
CORPORATE SOURCE: Takai Biotimer Project, ERATO, Japan Science and Technology Corporation, 2-2-10, Murotani, Nishi-ku, Kobe, 651-22, Japan.
CONTRACT NUMBER: RO1-MH52804 (NIMH)
SOURCE: Science, (1997 Sep 5) 277 (5331) 1511-5.
Journal code: 0404511. ISSN: 0036-8075.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199709
ENTRY DATE: Entered STN: 19971008
Last Updated on STN: 19971008
Entered Medline: 19970922

AB PSD-95 is a component of postsynaptic densities in central synapses. It contains three PDZ domains that localize N-methyl-D-aspartate receptor subunit 2 (NMDA2 receptor) and K+ channels to synapses. In mouse forebrain, PSD-95 bound to the cytoplasmic COOH-termini of **neuroligins**, which are neuronal cell adhesion molecules that interact with beta-neurexins and form intercellular junctions. **Neuroligins** bind to the third PDZ domain of PSD-95, whereas NMDA2 receptors and K+ channels interact with the first and second PDZ domains. Thus different PDZ domains of PSD-95 are specialized for distinct functions. PSD-95 may recruit ion channels and neurotransmitter receptors to intercellular junctions formed between neurons by **neuroligins** and beta-neurexins.

L15 ANSWER 39 OF 42 MEDLINE on STN DUPLICATE 20
ACCESSION NUMBER: 97067187 MEDLINE
DOCUMENT NUMBER: PubMed ID: 8910589
TITLE: Identifying differential gene expression in monoterpene-treated mammary carcinomas using subtractive display.
AUTHOR: Ariazi E A; Gould M N
CORPORATE SOURCE: Department of Human Oncology, University of Wisconsin-Madison, Madison, Wisconsin 53792, USA.. gould@humonc.wisc.edu
CONTRACT NUMBER: R37-CA38128 (NCI)
SOURCE: Journal of biological chemistry, (1996 Nov 15) 271 (46) 29286-94.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals

ENTRY MONTH: 199701
ENTRY DATE: Entered STN: 19970128
Last Updated on STN: 19970128
Entered Medline: 19970107

AB Monoterpene-induced/repressed genes were identified in regressing rat mammary carcinomas treated with dietary limonene using a newly developed method termed subtractive display. The subtractive display screen identified 42 monoterpene-induced genes comprising 9 known genes and 33 unidentified genes, as well as 58 monoterpene-repressed genes comprising 1 known gene and 57 unidentified genes. Several of the identified differentially expressed genes are involved in the mitoinhibitory transforming growth factor beta signal tranduction pathway, as demonstrated by isolation of the mannose 6-phosphate/insulin-like growth factor II receptor and the transforming growth factor beta type II receptor. The monoterpene-induced/repressed genes indicate that apoptosis and differentiation act in concert to effect carcinoma regression. Apoptosis is suggested by the cloning of a marker of programmed cell death, lipocortin 1. Consistent with a differentiation/remodeling process occurring during tumor regression, subtractive display identified YWK-II and **neuroligin** 1. Thus far, of the cDNAs putatively identified as differentially expressed in this complex in situ carcinoma model, 5 were tested, and each one has been confirmed to be differentially expressed. Additionally, many of the identified known genes are expressed as rare transcripts and exhibit small but significant changes in abundance. Together, these points demonstrate the unique utility of this new gene expression screen to identify altered gene expression in a complex in vivo environment.

L15 ANSWER 40 OF 42 MEDLINE on STN DUPLICATE 21
ACCESSION NUMBER: 96162010 MEDLINE
DOCUMENT NUMBER: PubMed ID: 8576240
TITLE: Structures, alternative splicing, and neurexin binding of multiple **neuroligins**.
AUTHOR: Ichtchenko K; Nguyen T; Sudhof T C
CORPORATE SOURCE: Department of Molecular Genetics, University of Texas Southwestern Medical Center, Dallas 75235, USA.
CONTRACT NUMBER: RO1-MH52804 (NIMH)
SOURCE: Journal of biological chemistry, (1996 Feb 2) 271 (5) 2676-82.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U41662; GENBANK-U41663
ENTRY MONTH: 199603
ENTRY DATE: Entered STN: 19960321
Last Updated on STN: 19960321
Entered Medline: 19960312

AB **Neuroligin** 1 is a neuronal cell surface protein that binds to a subset of neurexins, polymorphic cell surface proteins that are also localized on neurons (Ichtchenko, K., Hata, Y., Nguyen, T., Ullrich, B., Missler, M., Moomaw, C., and Sudhof, T. C. (1995) Cell 81, 435-443). We now describe two novel **neuroligins** called **neuroligins** 2 and 3 that are similar in structure and sequence to **neuroligin** 1. All **neuroligins** contain an N-terminal hydrophobic sequence with the characteristics of a cleaved signal peptide followed by a large esterase homology domain, a highly conserved single transmembrane region, and a short cytoplasmic domain. The three **neuroligins** are alternatively spliced at the same position and are expressed at high levels only in brain. Binding studies demonstrate that all three **neuroligins** bind to beta-neurexins both as native brain proteins and as recombinant proteins. Tight binding of the three **neuroligins** to beta-neurexins is observed only for beta-neurexins lacking an insert in splice site 4. Thus, **neuroligins** constitute a multigene family of brain-specific proteins with distinct isoforms that may have overlapping functions in mediating recognition processes between neurons.

L15 ANSWER 41 OF 42 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1996:256821 BIOSIS

DOCUMENT NUMBER: PREV199698812950
TITLE: Identification of induced/repressed genes in monoterpene-treated regressing rat mammary carcinomas using subtractive display.
AUTHOR(S): Ariazi, E. A.; Gould, M. N.
CORPORATE SOURCE: Dep. Human Oncology, UW-Madison, Madison, WI, USA
SOURCE: Proceedings of the American Association for Cancer Research Annual Meeting, (1996) Vol. 37, No. 0, pp. 398-399.
Meeting Info.: 87th Annual Meeting of the American Association for Cancer Research. Washington, D.C., USA. April 20-24, 1996.
ISSN: 0197-016X.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
Conference; (Meeting Poster)
LANGUAGE: English
ENTRY DATE: Entered STN: 31 May 1996
Last Updated on STN: 31 May 1996

L15 ANSWER 42 OF 42 MEDLINE on STN DUPLICATE 22
ACCESSION NUMBER: 95254653 MEDLINE
DOCUMENT NUMBER: PubMed ID: 7736595
TITLE: **Neuroligin** 1: a splice site-specific ligand for beta-neurexins.
AUTHOR: Ichtchenko K; Hata Y; Nguyen T; Ullrich B; Missler M; Moomaw C; Sudhof T C
CORPORATE SOURCE: Department of Molecular Genetics, University of Texas Southwestern Medical Center at Dallas 75235, USA.
CONTRACT NUMBER: R01-MH52804 (NIMH)
SOURCE: Cell, (1995 May 5) 81 (3) 435-43.
Journal code: 0413066. ISSN: 0092-8674.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U22952
ENTRY MONTH: 199506
ENTRY DATE: Entered STN: 19950615
Last Updated on STN: 19960129
Entered Medline: 19950607

AB Neurexins are neuronal cell surface proteins with hundreds of isoforms generated by alternative splicing. Here we describe **neuroligin** 1, a neuronal cell surface protein that is enriched in synaptic plasma membranes and acts as a splice site-specific ligand for beta-neurexins. **Neuroligin** 1 binds to beta-neurexins only if they lack an insert in the alternatively spliced sequence of the G domain, but not if they contain an insert. The extracellular sequence of **neuroligin** 1 is composed of a catalytically inactive esterase domain homologous to acetylcholinesterase. In situ hybridization reveals that alternative splicing of neurexins at the site recognized by **neuroligin** 1 is highly regulated. These findings support a model whereby alternative splicing of neurexins creates a family of cell surface receptors that confers interactive specificity onto their resident neurons.

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